



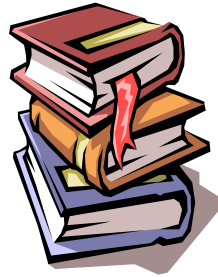
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# THE STANDARDS FORUM

Your publication for news about the DOE Technical Standards Program

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## Lessons Learned and Technical Standards: A Logical Marriage

By: Paul Gill, National Aeronautics and Space Administration (NASA); William W. Vaughan, NASA consultant and University of Alabama; and Danny Garcia, NASA

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Passed down from parent to child, teacher to pupil, and from senior to junior employees, lessons learned have been the basis for our accomplishments throughout the ages. Government and industry, too, have long recognized the need to systematically document and utilize the knowledge gained from past experiences in order to avoid the repetition of failures and mishaps. The use of lessons learned is a principle component of any organizational culture committed to continuous improvement. They have formed the foundation for discoveries, inventions, improvements, textbooks, and technical standards.

Technical standards are a very logical way to communicate these lessons. Using the time-honored tradition of passing on lessons learned while utilizing the newest in information technology, the National Aeronautics and Space Administration (NASA) has launched an intensive effort to link lessons learned with specific technical standards through various Internet databases. This article will discuss the importance of lessons learned to engineers, the difficulty in finding relevant lessons learned while engaged in an engineering project, and the new NASA project that can help alleviate this difficulty. The article will conclude with recommendations for more expanded cross-sectoral uses of lessons learned with reference to technical standards.

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## Reminder . . .

This year's information on standards use and participation in standards developing organizations is due to the Technical Standards Program Office by March 29, 2002!

## Technical Standards Managers: Your Input is Needed for CY 2002 Program Activities!

### DOE-TSL-1 (DOE Standards Index)

The DOE Standards Index has served to identify technical standards (Government and non-Government) and standardization documents used by DOE and its contractors. Each year, the Technical Standards Program Office (TSPO) uses the DOE Directives System to identify new/revised DOE directives that identify (a) non-Government (voluntary consensus) standards adopted for use by reference in the directive(s), and (b) documents prepared by other Federal agencies that DOE and its contractors use as technical standards (in both instances, the review focuses on standards/documents

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## Openness, Balance of Interest, Due Process, Transparency

A few years ago, I discussed the basic tenants of standards development, namely, that all standards processes feature openness, balance of interest, due process, and transparency. Another criterion that is critical to the success of the American standards system is that participants are technically qualified and experienced—are subject matter experts (SMEs)—in their area of participation. These criteria apply to the Department of Energy (DOE) Technical Standards Program (TSP) as much as they apply to the American National Standards Institute's (ANSI) member organizations [e.g., American Society for Testing and Materials (ASTM), American Society of Mechanical Engineers (ASME), Institute of Electrical and Electronics Engineers (IEEE), and American Nuclear Society (ANS)], where they have served well for more than 100 years.

The DOE TSP contains most of the ANSI system features; the ANSI system and the Department of Defense (DoD) system served as the models for the DOE system. The “balance of interest” feature is maintained in two general ways. One way is through the DOE Technical Standards Managers’ Committee (TSMC), which consists of about 40 Technical Standards Managers (TSMs) appointed by senior management from each DOE HQ, field, and DOE contractor organization participating in standards activities on behalf of DOE (i.e., in direct support of DOE missions and functions). The TSMC participates in and supports the implementation of standards policy, standards development procedures [i.e., the TSP Procedures (TSPPs)], standards services (including the TSP home page), and the TSP strategic plan. The TSMC helps ensure that the TSP focuses on valid goals, important functions, and business practices that are practical and compatible with the needs of both Federal and contractor elements across DOE. Another important aspect of the “balance of interest” feature is maintained through the participation of both Federal and contractor SMEs in the standards development process, the TSP comment and comment resolution processes, and DOE topical committee (TC) operations and activities.

DOE and its contractors have systems for establishing technical competence. The DOE system for nuclear safety related competence is based on position and job descriptions, in conjunction with the Technical Qualification Standards (TQSS) established under the DOE Technical Qualification Program (TQP). (Note that the TQSSs, while initially outside of the Directives System and TSP, are now gradually being incorporated into the DOE TSP.) DOE TCs can establish their own criteria for participation with their groups. The *Technical Standards Program Guide* (DOE G 252.1-1) also provides criteria that describe how technical competence should be applied in standards development, review, and use.

**“The DOE TSP contains most of the ANSI system features; the ANSI system and the Department of Defense (DoD) system served as the models for the DOE system.”**

The concept of “openness” is manifested in the TSP by the open participation of SMEs from all DOE and contractor elements in standards development and review, and the open participation of TSMs from all active DOE and contractor elements in the TSMC. The TSMC meets routinely in an open forum to discuss program status and program issues. This provides a link to “due process” since the TSP operates through formal procedures (i.e., TSPPs) developed, reviewed, and approved by the TSMC and TSP Manager. The TSPPs are flexible and can be changed by the TSMC to meet changing business needs. They provide a defined mode of operation and expectations for DOE standards development, approval, and maintenance. Furthermore, they include procedures for appealing and resolving technical and administrative issues. After several years of positive feedback, incorporation of experience and lessons learned, and practical application, the TSPPs have become quite polished and responsive to DOE needs. The well-defined TSPPs and *TSP Guide* support “transparency” in the TSP processes and procedures, where there are no hidden agendas, undefined processes, or undue external influences. The TSP is pretty much “what you see is what you get.”

In a government agency where every four years we often must change directions, we need to be able to respond to our management and still keep control of our business processes without becoming dysfunctional. It is a temptation to step outside of due process (e.g., well-formed procedures) and resort to unsupported processes such as memos, e-mails, unreviewed drafts, “rogue” directives, and word-of-mouth, to conduct business. These processes can be crippling in the long run, often resulting in actions and documents that are technically and administratively unacceptable and limiting the involvement of people key to our success (e.g., contractors). We must operate the DOE TSP under the concepts of openness, balance of interest, due process, transparency, and technical competence to support technical standards needs and business needs across DOE. TSMs and the TSMC, coordinated under the TSPPs, the *TSP Order* (DOE O 252.1), the *TSP Guide*, and an active TSP Office, help us meet those criteria and support DOE business needs

—Rick Serbu



Lessons Learned . . . (Continued from page 1)

## LESSONS LEARNED IN THE TECHNICAL SPHERE

In the technical arena, truly useful lessons learned must be *significant* in that they have a real or assumed impact on operations, *valid* in that they are technically correct, and *applicable* in that they address a design process or decision that mitigates or eliminates the risk of failures or reinforces a positive result. They should communicate only lessons, and should not be used as a replacement for other management information functions such as self-assessment, failure investigation, and corrective action systems.

Lessons learned are a powerful method of sharing ideas for improving work processes, facility or component design and operation, quality, safety, and cost effectiveness. Properly implemented, they should improve management decision-making during every phase of project activity.

It is important to document lessons learned in order to convey information on experiences, to control recurrence of a problem, improve safety, enhance risk management, and facilitate improved interoperability. Thus, they are an important and critical resource that can be used by engineers, scientists, and technicians to support, for example, the design of flight and ground support hardware, software, facilities, and procedures. Sometimes best practices are also referred to as lessons learned applied.

Information on lessons learned may be found in a number of different locations, including organizational technical reports, professional engineering journals, and databases specifically focused on lessons learned. But locating a lesson learned applicable to one's specific interest is generally not a very "user friendly" experience—hence the motivation for developing a "marriage" with technical standards.

### THE PROBLEM

With the explosion in technical accomplishments during the past century, especially during the last few decades, it has become critical to rapidly communicate the knowledge gained through experience. This is very true for activities associated with producing more advanced products within the "faster, better, cheaper" philosophy. The dependence upon word of mouth and textbooks to communicate lessons learned, while still important, is no longer adequate or realistic. Expecting engineers and scientists to search through the ever-increasing number and contents of lessons learned databases is less than productive. It is difficult and time consuming for most engineers to search for and use such lessons learned databases. However, there is a viable solution to this problem.

### A SOLUTION

All NASA programs and projects are based on the application of technical standards, whether produced by government agencies including the Department of Defense, or by non-government standards developing organizations such as ASTM. The development of these and other technical standards have gone through an extensive review process. Given this database of technical standards, along with the existence of a screened lessons learned database, a productive marriage of the two is now possible.

At the time of this printing, the NASA Technical Standards Program Web site has incorporated over 80 national and international lessons learned databases since June 2001, providing engineers and other interested parties a chance to find the relevant experiences of other professionals who have already encountered specific concerns in aerospace engineering.

To view these, go to <http://standards.nasa.gov> and then click the NASA Access or Public Access links on the menu page. Once registered, click on the Lessons Learned/Best Practices link for direct access to the listing of lessons learned databases related to aerospace engineering.

Here are some examples of lessons learned databases incorporated into the NASA Technical Standards Program Web site:

- NASA/Headquarters—Lessons Learned Information System;
- NASA/Glenn Research Center—Frequently Asked Questions on Failures;
- NASA/Kennedy Space Center—Cryogenic Transfer System Mechanical Design;
- NASA/Goddard Space Flight Center—Systems Engineering Office Lessons Learned;
- Satellite Mission Operations Best Practices; and
- NASA/Langley Research Center—Lessons for Software Systems.

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## THE APPROACH

On the surface, this marriage appears easily achievable but this is not the case. It requires the talents of dedicated and experienced engineers who must also possess the gifts of persistence and meticulous attention to detail. The material involved must be read and interpreted and then correlated. The lessons learned database must then be integrated with the technical standards database. Both databases continue to grow at a prolific rate. Once related, the lessons learned must be reviewed and associated with the applicable technical standards.

A NASA "pilot" effort to test this approach has been successful. Consideration is being given to expand the effort beyond the NASA Preferred Technical Standards database, which includes selected ASTM and other technical standards. To the degree practical, this should be done in collaboration with the standards developing organizations involved.

The result will be an invaluable database whereby any technical standard required for a program or project design, development, or operations process will also have identified with it any relevant lessons learned. This marriage will without doubt significantly encourage the development of "faster, better, cheaper" products. Also, technical standards with associated lessons learned may be candidates for revision or may spur the development of a new technical standard.

**Figure 1: Example Standards Document Summary Page for MIL-Standard 1686**

Summary Page				
MIL-STD-1686	Revision: C		Status: Active	NASA Status: Preferred
DoDISS info	No. of NASA Accesses since 06/2001: 4		SDO: MIL	Year Reaffirmed:
TITLE: ELECTROSTATIC DISCHARGE CONTROL PROGRAM FOR PROTECTION OF ELECTRICAL AND ELECTRONIC PARTS, ASSEMBLIES AND EQUIPMENT (EXCLUDING ELECTRICALLY INITIATED EXPLOSIVE DEVICES) (SUPERCEDING MIL-STD 1686B)				
Base	Date: 10/25/1995		19 Pages	View Doc      View TOC
Document Scope				
<b>[Base - 10/25/1995]</b> The purpose of this standard is to establish comprehensive requirements for an ESD control program to minimize the effects of ESD on parts, assemblies, and equipment. An effective ESD control program will increase reliability and decrease both maintenance actions and lifetime costs. This standard shall be tailored for various types of acquisitions.				
Application Notes				
Applicable Revision	Project ID	NASA Center	Creation Date	Note
—	—	JPL	4/26/2001	Requires that each facility have a document that describes how they implement ESD controls (for example, see MSFC-RQMT-2918).
Lessons-Learned and Best-Practice				
LL/BP No.	Title		Date	Relevance to the Standard
<a href="#">685</a>	Electrostatic Discharge (ESD) Control in GSE		2/1/1999	The Lesson provides technical recommendations for the control of ESD in aerospace equipment.
<a href="#">732</a>	Electrostatic Discharge (ESD) Control in Flight Hardware		2/1/1999	The Lesson addresses the generation of triboelectric and electrostatic charges as a common cause of damage and/or degradation to unprotected Electrostatic Discharge Sensitive (ESDS) devices. A carefully devised and implemented ESD control program can provide protection from this damage and/or degradation.
Document History				
Document No.	Rev	Date	Title	Status
<a href="#">MIL-STD-1686B</a>	B	12/31/1992	ELECTROSTATIC DISCHARGE CONTROL PROGRAM FOR PROTECTION OF ELECTRICAL AND ELECTRONIC PARTS, ASSEMBLIES, AND EQUIPMENT (EXCLUDING ELECTRICALLY INITIATED EXPLOSIVE DEVICES) (S/S BY MIL-STD-1686C) (SUPERCEDING MIL-STD-1686A)	Superseded
<a href="#">MIL-STD-1686A</a>	A	08/08/1998	ELECTROSTATIC DISCHARGE CONTROL PROGRAM FOR PROTECTION OF ELECTRICAL AND ELECTRONIC PARTS, ASSEMBLIES, AND EQUIPMENT (EXCLUDING ELECTRICALLY INITIATED EXPLOSIVE DEVICES) (METRIC) (S/S BY MIL-STD-1686C)	Superseded

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## Welcome Aboard the TSMC!



The Technical Standards Managers (TSMs) are the backbone of the DOE Technical Standards Program!

These knowledgeable individuals serve as their organization's standards point of contact and contribute to the coordination of Department-wide TSP activities. A great deal of their work time is spent in assuring that standards activities take place in a manner that will promote safe, economical, and efficient operations locally and across the DOE complex.

With nearly 90 active and mobile people involved in TSM activities, it can be a daunting task just to keep up with the retirements and reassignments affecting the TSM roster. This "Welcome Aboard" feature is designed to introduce you to the new TSMs and help you keep abreast of the rapidly changing make-up of the Technical Standards Managers' Committee (TSMC).

The TSMC welcomes the following recently added members.

Keith Bradley (replaced Jeff Paris)  
Bechtel Jacobs Company  
P.O. Box 4699  
Oak Ridge, Tennessee 37830-7056  
[bradleyka@bechteljacobs.org](mailto:bradleyka@bechteljacobs.org)

Donna Joslin (replaced Vickie Atkinson)  
Battelle  
Pacific Northwest National Laboratory  
P.O. Box 999  
MS K6-53  
Richland, Washington 99352  
Phone: 509-376-0148  
Fax: 509-376-0191  
[Donna.Joslin@pnl.gov](mailto:Donna.Joslin@pnl.gov)

Paulette Kaptain (replaced Duane Torgerson)  
Western Area Power Administration  
P.O. Box 281213  
Lakewood, Colorado 80228-8213  
Phone: 720-962-7421  
Fax: 720-962-7427  
[akaptain@wapa.gov](mailto:akaptain@wapa.gov)

Jim Murphy (replaced Ron Sundelin)  
Thomas Jefferson National Accelerator Facility  
12000 Jefferson Avenue  
Newport News, Virginia 23606  
Phone: 757-269-7664  
[jjmurphy@jlab.org](mailto:jjmurphy@jlab.org)

(Continued from page 1)

not previously identified and recorded by the TSPO). However, other valuable source documents contain similar references to voluntary consensus standards and Federal documents that should be reviewed as part of the DOE-TSL-1 update process. Examples of these documents include sets of "Necessary and Sufficient" or "Work-Smart" standards; site/facility safety analysis reports, Standards/Requirements Identification Documents (S/RIDs) and implementation plans; and appendices to M&O contracts with listings of mandatory standards. Many of these documents are accessible through Web sites other than the Directives System.

Operations Office and Contractor TSMs are requested to: (a) identify site/facility documents of the type discussed above, obtain copies and send them to the TSPO, c/o Oak Ridge National Laboratory (ORNL), P. O. Box 2009, Oak Ridge, Tennessee 37831-8057 or (b) identify the Web site (URL) where the documents can be accessed for review. Where these source documents can be transmitted electronically, send them to Marsha McGinnis at [McGinnisMP@ornl.gov](mailto:McGinnisMP@ornl.gov) (Phone: 865-574-2506). This information is needed no later than **March 29, 2002**. Note that if these documents were provided to ORNL last year and no changes have been made, retransmittal of the documents is not required.

### DOE-TSL-4 (Directory of DOE and Contractor Personnel Involved in Non-Government Standards Activities)

The TSPO needs updated information on the personnel in your organization that either participate in the devel-

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## THE STANDARDS FORUM

Editor: Marsha McGinnis, [mcginnismp@ornl.gov](mailto:mcginnismp@ornl.gov)

**Distribution:** *The Standards Forum* is an electronic newsletter available from the TSP Web Site (<http://tis.eh.doe.gov/techstds/>). To update your mailing and e-mail addresses, please contact Amy Bush, ORNL, 865-576-2395, Fax 865-574-8481 [bushar@ornl.gov](mailto:bushar@ornl.gov).

**Comments:** If you have any questions or comments please contact Rick Serbu, EH-53, 301-903-2856, [Richard.Serbu@eh.doe.gov](mailto:Richard.Serbu@eh.doe.gov). If you have any questions or comments on DOE Technical Standards projects, please call Don Williams, ORNL, 865-574-8710, [williamsdljr@ornl.gov](mailto:williamsdljr@ornl.gov).

**Publication:** ORNL and DOE's ES&H Technical Information Services post *The Standards Forum* quarterly for the DOE Technical Standards Program at <http://tis.eh.doe.gov/techstds/>.

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opment of voluntary consensus standards or serve on management boards of voluntary consensus standards bodies. All TSMs are requested to review: (a) the 1999 edition of DOE-TSL-4 for individuals in your organization to contact for confirming their current participation (a PDF file of the 1999 edition of TSL-4 can be found at <http://tis.eh.doe.gov/techstds/>), and (b) your organization's input on new/revised participations in CY 2001. You should also consult your Web-based personnel directories to confirm if the participating individuals are still employed by your organization. In addition, all TSMs should issue a general request within your organization for information on new or modified participation activities.

New participations, revisions of information previously submitted, or terminations of membership should be documented using DOE F 1300.2, "Record of Non-Government Standards Activity." A copy of this form is available from (a) an attachment to DOE Order 252.1, (b) your copy of the TSPPs, or (c) the TSP Web site listed above. Please be sure to provide complete information on the form to ensure a person's participation is recorded. Note that only new, revised, or terminated participations need to be documented on DOE F 1300.2. All DOE F 1300.2 forms should be transmitted to Amy Bush, ORNL, P.O. Box 2009, Oak Ridge, Tennessee 37831-8051 (865-576-2395; fax: 865-574-8481). This information is needed no later than **March 29, 2002**.

The data provided will be used to update the Technical Standards Information System in preparation for the FY 2002 DOE report to NIST on Federal participation in voluntary standards activities in accordance with OMB Circular A-119.

### Technical Standards Program Procedures (TSPPs)

As you know, the TSPPs were updated in August 2000. However, the Technical Standards Program Office (TSPO) is interested in receiving feedback on the usefulness of the procedures and any changes needed to make the development, coordination, approval and maintenance processes for DOE Technical Standards more responsive to the needs of the users of technical standards and TSP stakeholders. Consequently, any TSPP changes that you would like to propose should be submitted to Rick Serbu, U.S. Department of Energy, EH-53/270CC, 19901 Germantown Rd., Germantown, Maryland 20874-1290, [Richard.Serbu@eh.doe.gov](mailto:Richard.Serbu@eh.doe.gov) by **March 29, 2002**. If a significant number of comments and/or proposed changes are received, a revision to the TSPPs will be prepared at the end of CY 2002.

As always, thank you in advance for your help and continued support of the Technical Standards Program. If you have any questions concerning this request, please contact Rick Serbu at 301-903-2856 ([Richard.Serbu@eh.doe.gov](mailto:Richard.Serbu@eh.doe.gov)).

## ANSI Launches Update to NSSN

The American National Standards Institute (ANSI) recently launched a newly updated version of its NSSN: A National Resource for Global Standards. The NSSN (<http://www.nssn.org/>) offers access to information on more than 300,000 standards from around the world and direct links to nearly 100,000 documents available in electronic formats.



The enhanced Web site provides improvements to its search capabilities and introduces several new features, including cross-references to regulatory documents and more convenient access to standards for its network site license customers. According to ANSI's director of content management, Ken Peabody, the goal was to develop an easier-to-maintain system that would allow more frequent updates and give users quick access to the most current information.

The new search engine is designed to provide users with additional flexibility, including the ability to search by document number, title, abstract, developing organization or committee. Users can specify how the searches are performed (e.g., search for all words, any words, or a phrase). Summary results, which list the developing organization, document number, and title, are displayed first and provide links to more complete bibliographic data and order information. In addition, the Institute's network site license customers will have quick access to documents available from the summary results page.

ANSI recently formed a partnership with RegScan Incorporated, an organization with 14-years experience as a regulatory and compliance product developer. As a result of this partnership, the updated version of the NSSN also includes a new feature, regulatory references to voluntary standards from the Code of Federal Regulations (CFR), provided by RegScan. The data includes the document number and title of the voluntary standard as well as how and where it is referenced in the CFR. There is a link to the RegScan site to get to the text of the CFR.



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## EXAMPLES

To illustrate the results of the pilot effort regarding the integration of information on lessons learned with technical standards, two examples are presented as they appear within the NASA Technical Standards Program Web site. These examples are taken from the agency-wide Full-Text Technical Standards System within the NASA Access site on the main menu page. (Due to licensing agreements on the access to non-government technical standards products, the NASA Access site is only available to those within the nasa.gov domain.)

Figure 1 (page 4) provides an illustration of the Standards Document Summary page for MIL-STD-1686 C, Electrostatic Discharge Control Program for Protection of Electrical and Electronic Parts, Assemblies, and Equipment (Excluding Electrically Initiated Explosive Devices), a NASA Preferred Technical Standard. The information provided for a user on this NASA Preferred Technical Standard includes two lessons learned links, plus a brief description of each, that are available on the NASA Lessons Learned Information System (LLIS) database. The nasa.gov domain user of this standard can then easily locate the two listed lessons learned through hyperlinks and decide whether the contents might be applicable to their use of this MIL-STD. The full-text content of this MIL-STD is readily available from both the NASA Access and Public Access sites.

Figure 2 provides a similar illustration of the Standards Document Summary page for ASTM B 117, Practice for Operating Salt Spray (Fog) Apparatus. This ASTM technical standard is one that has been endorsed by the agency as a NASA Preferred Technical Standard and it is so identified on both the NASA Access and Public Access sites. However, its full-text content is readily available only from the NASA Access site due to licensing restrictions noted above. There is one lesson learned entry noted from the NASA LLIS database.

**Figure 2: Standards Document Summary Page for ASTM B 117**

Summary Page				
ASTM B 117	Revision: 1997	Status: Active	NASA Status: Preferred	
DoDISS info	No. of NASA Accesses since 06/2001: 0	SDO: ASTM	Year Reaffirmed:	
TITLE: OPERATING SALT SPRAY (FOG) APPARATUS (SUPERSEDING <u>ASTM B 117-1995</u> ) (DoD Adopted)				
Base	Date: 04/10/1997	8 Pages	View Doc	
Document Scope				
<b>[Base - 04/10/1997]</b> <b>1. Scope</b> 1.1 This practice describes the apparatus, procedure, and conditions required to create and maintain the salt spray (fog) test environment. Suitable apparatus which may be used is described in Appendix XI. 1.2 This practice does not prescribe the type of test specimen or exposure periods to be used for a specific product, nor the interpretation to be given to the results. 1.3 The values stated in SI units are to be regarded as standard. The inch-pound units in parentheses are provided for information and may be approximate. 1.4 This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.				
Application Notes				
Applicable Revision	Project ID	NASA Center	Creation Date	Note
Lessons-Learned and Best-Practice				
LL/BP No.	Title		Date	Relevance to the Standard
<u>764</u>	Controlling Stress Corrosion Cracking in Aerospace Applications		2/1/1999	The Lesson presents considerations that should be evaluated and applied concerning stress corrosion and subsequent crack propagation in mechanical devices, structural devices, and related components used in aerospace applications..
View History				

## VALUE

Both government and industry conscientiously investigate, document, and track all of their successes and failures. Yet, most of that work is meaningless if an industry or government agency fails to incorporate these experiences into ongoing and future programs and projects and their operations. They need a viable mechanism to identify and incorporate lessons learned into their design, development, and operations efforts, thus reducing mission risk. The cost of achiev-

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ing the marriage of lessons learned and technical standards will be modest compared to the significant results that will be achieved.

### VALUE EXAMPLE

This value example illustrates how the Crane Division of the Naval Surface Warfare Center achieved cost avoidances throughout the military services by applying design improvements acquired through lessons learned and associated common specifications for configuration control across several battery systems and related equipment. The example also illustrates how a rather simple component, such as a battery vent cap, can have an enormous impact on maintenance and repair costs. (See the Defense Standardization Program Case Study, Aircraft Batteries and Components, at <http://www.dsp.dla.mil>. Click on Library, then click on Standardization Case Studies.)

The types of batteries in military inventories are as diverse as their uses. Batteries range in size from small button cells (0.03 ampere hours) to launch facility batteries (10,000 ampere hours), and span the entire spectrum of chemistries (e.g., alkaline, lead-acid, lithium, nickel-cadmium, nickel-iron, seawater). All told, there are 3,800 different types of military batteries, some costing more than tens of thousands of dollars each.

In some cases, inadequate components on the batteries also caused unanticipated wear or damage to the systems that used them. Attention focused especially on the vent caps for aircraft batteries. Vent caps are supposed to retain the corrosive electrolyte, allow a controlled release of pressure, and prevent contaminants from entering the cells. Despite the requirements, the design and materials of the vent caps on original equipment manufacturer (OEM) batteries allowed leakage to occur during operation. The CH-46 helicopter and C-130 and C-141 aircraft were using flooded lead-acid or nickel cadmium batteries that spilled electrolyte onto the airframe structure. The leakage not only deteriorated the battery and shortened its service life, but also corroded the battery compartment and other aircraft parts. The failure of the vent caps to perform properly led to more than half of the battery failures and maintenance actions.

The problem of faulty vent caps was addressed by replacing OEM vent caps with standard government-designed vent caps. These included the following improvements:

- Using O-ring material and vent band materials that are impervious to electrolyte.
- Changing the physical shape of the battery to redirect the electrolyte away from gas vent paths, thereby eliminating the expulsion of electrolyte as cell pressure increased.
- Applying configuration control through common specifications, which eliminate tolerance issues between rival battery manufacturers and allow one vent cap to be used on products from different companies.

In addition, major cost avoidances have resulted from reduced damage to the battery compartment and aircraft structural components. The documented cost for the vent cap replacements as \$717,000, which resulted in a significant \$165,120,000 in cost avoidances through fiscal year 1999 for the DoD.

### RECOMMENDATIONS

Links should be established as soon as practical between lessons learned and, where possible, the technical standards to which they relate. This can be accomplished by government organizations such as NASA and DoD, industry groups, and standards developing organizations. The results can then be made available and shared with all interested parties. Users of the technical standards would then have immediate links, access to lessons learned and other relevant information as they select and apply technical standards in the normal design, development, and operations process.

The longer-term goal should be to update technical standards and, where appropriate, to reflect lessons learned. Normal practice in the standards community is for technical standards to be reviewed and, where necessary, updated at least once in five years. Links to related lessons learned would provide a basis for additions and updates of technical standards, thus facilitating the marriage process. For government and non-government developed technical standards, the addition of lessons learned can be made directly whenever prudent. To accomplish this goal, and thus reduce mission risk, it is recommended that initiatives by those developing and using technical standards products be established to integrate lessons learned with technical standards.

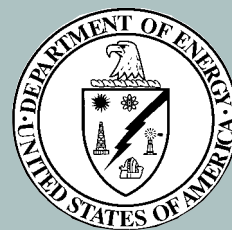
There are no guarantees that future mishaps like the recent two NASA/JPL Mars Missions will not occur. However, the existence of an integrated lessons learned and technical standards system will certainly contribute toward minimizing such risks. Only one project saved or enhanced will repay the cost of developing an integrated lessons learned and technical standards system many-fold. Without this marriage the lessons learned database, and other similar databases, will continue to find limited and very focused utility relative to the development and operation of future industry and government programs and projects.





March 2002

# Standards Actions



## DOE Technical Standards Program Document Status

03-01-2002

### Activity Summary

In Conversion—4

In Preparation—44

Out for Comment—13

Published this Month—2



### 5-year Review Status

Revision in Progress—10

Reaffirmation in Progress—8

Cancellation Pending—4

Cancellation in Progress—1

Proposed for Cancellation—0

No Current Action—22

## DOE Technical Standard Recently Sent for Coordination

The appropriate Technical Standards Managers (TSMs) will request specific reviewers to comment on this draft. The full text of the document is available on the TSP Web Site. If you wish to comment on this document, please notify your TSM.

### The following draft DOE Technical Standard was recently distributed for coordination.

- *Radiological Training for Accelerator Facilities*, revision to DOE-HDBK-1108-97, Project Number: TRNG-0021, Peter O'Connell, U.S. Department of Energy, EH-52, 19901 Germantown Road, Germantown, Maryland, 20874-1290; 301-903-5641; Fax: 301-903-7773; **Peter.O'Connell@eh.doe.gov**. Comments are due April 16, 2002.

## Published DOE Technical Standards

### The following DOE Technical Standards were recently printed and posted on the TSP Web Site:

- DOE-HDBK-1105-2002, *Radiological Training for Tritium Facilities*, superseding DOE-HDBK-1105-96.
- DOE-STD-1020-2002, *Natural Phenomena Hazards Design and Evaluation Criteria for Department of Energy Facilities*, revision to DOE-STD-1020-94.

DOE employees and DOE contractors may obtain copies from the ES&H Technical Information Services, U.S. Department of Energy; 1-800-473-4375, Fax 301-903-9823.

Subcontractors and the general public may obtain copies from the U.S. Department of Commerce, Technology Administration, National Technical Information Service, Springfield, Virginia 22161; 703-605-6000, Fax 703-605-6900.

Copies of DOE Technical Standards (i.e., DOE Standards, Specifications, Handbooks, and Technical Standards Lists) are also available on the TSP Web Site.

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## Non-Government Standards

### American National Standards Institute

The American National Standards Institute (ANSI) publishes coordination activities of non-Government standards (NGS) biweekly in *ANSI Standards Action*. Recent electronic copies (no hardcopies are produced) are available on the ANSI Web site at [http://web.ansi.org/rooms/room\\_14/](http://web.ansi.org/rooms/room_14/). Electronic back copies are available to ANSI members only. For information on site membership, ask your local ANSI contact. For information on individual or group ANSI membership, contact Susan Bose at 212-642-4948 or **sbose@ansi.org**.

Hardcopy versions of published non-Government standards listed in this section may be obtained from Global Engineering Documents, 15 Inverness Way East, Englewood,

Colorado, 80112, 800-854-7179, Fax 303-397-2740, [global@ihs.com](mailto:global@ihs.com), <http://global.ihs.com>. Electronic delivery of selected documents is available through ANSI at <http://webstore.ansi.org>. Copies of the listed draft standards and the procedure for commenting on them may be obtained by contacting the standards developing organization.

The following listings are extracted from *ANSI Standards Action* and are representative of NGS development activities that may be relevant to DOE operations. Refer to *ANSI Standards Action* for a more extensive listing of changes and new publications, standards developing organizations, and additional information about submitting comments. Additional information on ANSI activities and available non-Government standards can be found on the ANSI Web site, <http://www.ansi.org>, or through the National Standards System Network, <http://www.nssn.org>.

**The following American National Standards are currently in coordination** (comment due dates follow each entry):

- ANS 3.8.5-1992, *Criteria for Emergency Radiological Field Monitoring, Sampling, and Analysis* (reaffirmation of ANSI/ANS 3.8.5-1992) – April 9, 2002.
  - ANS 59.3-1992, *Nuclear Safety Criteria for Control Air Systems* (reaffirmation of ANSI/ANS 59.3-1992) – April 9, 2002.
  - ASME AG-1, *Nuclear Air and Gas Treatment, Code on* (revision of ANSI/ASME AG-1-1994) – April 9, 2002.
  - ASME HPS-1994, *High Pressure Systems* (revision of ANSI/ASME HPS-1994) – April 23, 2002.
  - ASME OMa Code-200x, *Code for Operation and Maintenance of Nuclear Power Plants* (supplement to ANSI/ASME OM Code-2001) – April 23, 2002.
  - ASTM A372/A372M-1999, *Specification for Carbon and Alloy Steel Forgings for Thin-Walled Pressure Vessels* (revision of ANSI/ASTM A372/A372M-99) – April 8, 2002.
  - ASTM A479/A479M-2001, *Specification for Stainless Steel Bars and Shapes for Use in Boilers and Other Pressure Vessels* (revision of ANSI/ASTM A479/A479M-01) – April 8, 2002.
  - ASTM A555-1996, *Specification for General Requirements for Stainless Steel Wire and Wire Rods* (reaffirmation of ANSI/ASTM A555-1996) – April 8, 2002.
  - NSF 53 (i17r1.7)-200x, *Drinking Water Treatment Units – Health Effects* (Issue 29) (revision of ANSI/NSF 53-2001) – April 8, 2002.
  - UL 1008-200x, *Standard for Safety for Transfer Switch Equipment* (revision of ANSI/UL 1008-1998) – April 8, 2002.
  - UL 1565-200x, *Wire Positioning Devices* (revision of ANSI/UL 1565-1995) – April 8, 2002.
- The following American National Standards have been approved for publication** (Publication is to take place within six months following the date shown. Publication status and ordering information may be obtained from ANSI's Customer Service at 212-642-4900.):
- ANSI/ASTM E1419-02, *Test Method for Examination of Seamless, Gas-Filled, Pressure Vessels Using Acoustic Emission* (revision of ANSI/ASTM E1419-00) – January 10, 2002.
  - ANSI/ASTM E1605-02, *Terminology Relating to Lead in Buildings* (revision of ANSI/ASTM E1605-01) – December 10, 2001.
  - ANSI/ASTM E1792-02, *Specification for Wipe Sampling Materials for Lead in Surface Dust* (revision of ANSI/ASTM E1792-96) – December 10, 2001.
  - ANSI/ASME NOG-1-2002, *Rules for Construction of Cranes Monorails and Hoists* (revision of ANSI/ASME NOG-1-1998) – January 24, 2002.
  - ANSI/ASME PVHO-1-2002, *Safety Standard for Pressure Vessels for Human Occupancy* (revision of ANSI/ASME PVHO-1-1997 Edition) – January 14, 2002.
  - ANSI/ASME RA-S-2002, *Probabilistic Risk Assessment for Nuclear Power Plant Applications* (new standard) – January 31, 2002.
  - ANSI/IEEE 420-2001, *Standard for the Design and Qualification of Class 1E Control Boards, Panels and Racks Used in Nuclear Power Generating Stations* (new standard) – January 30, 2002.
  - ANSI/NFPA 25-2002, *Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems* (revision of ANSI/NFPA 25-1998) – January 31, 2002.
  - ANSI/NFPA 37-2002, *Standard for the Installation and Use of Stationary Combustion Engines and Gas Turbines* (revision of ANSI/NFPA 37-1998) – January 31, 2002.
  - ANSI/NFPA 110-2002, *Standard for Emergency and Standby Power Systems* (revision of ANSI/NFPA 110-1999) – January 31, 2002.
  - ANSI/NFPA 471-2002, *Recommended Practice for Responding to Hazardous Materials Incidents* (revision of ANSI/NFPA 471-1997) – January 31, 2002.

(Continued on page 11)

- ANSI/NFPA 472-2002, *Standard for Professional Competence of Responders to Hazardous Materials Incidents* (revision of ANSI/NFPA 472-1997) – January 31, 2002.
- ANSI/NSF 60-2002, *Drinking Water Treatment Chemicals-Health Effects* (revision of ANSI/NSF 60-2000) – January 14, 2002.
- ANSI/UL 1203-2002, *Standard for Safety for Explosion-Proof and Dust-Ignition-Proof Electrical Equipment for Use in Hazardous (Classified) Locations* (new standard) – January 30, 2002.
- ANSI/UL 8-2002, *Standard for Safety for Foam Fire Extinguishers* (revision of ANSI/UL 8-2000) – January 28, 2002.
- ANSI/UL 154-2002, *Standard for Safety for Carbon Dioxide Fire Extinguishers* (revision of ANSI/UL 154-2000) – January 28, 2002.
- ANSI/UL 299-2002, *Standard for Safety for Dry Chemical Fire Extinguishers* (revision of ANSI/UL 299-2000) – January 28, 2002.
- ANSI/UL 711-2002, *Standard for Safety for Rating and Testing of Fire Extinguishers* (revision of ANSI/UL 711-1999) – January 28, 2002.

**The following international standards are currently in coordination** (comment due dates follow each entry):

- 45B/351/FDIS, IEC 61577-3: *Radiation protection instrumentation – Radon and radon decay product measuring instruments – Part 3: Specific requirements for radon decay product measuring instruments* – March 22, 2002.
- ISO/ASTM DIS 52116, *Practice for dosimetry for a self-contained dry-storage gamma irradiator* – May 1, 2002.
- ISO/DIS 10981, *Nuclear fuel technology – Determination of uranium in reprocessing-plant dissolver solution – Liquid chromatography method* – May 1, 2002.
- ISO/DIS 11170, *Hydraulic fluid power – Filter elements – Sequence of tests for verifying performance characteristics* – April 25, 2002.
- ISO/DIS 17559, *Hydraulic fluid power – Electrically controlled oil hydraulic pumps – Test methods to determine performance characteristics* – April 25, 2002.

**The following newly published international standards are available:**

- IEC 60761-1 Ed. 2.0 b:2002, *Equipment for continuous monitoring of radioactivity in gaseous effluents – Part 1: General requirements*.
- IEC 60761-2 Ed. 2.0 b:2002, *Equipment for continuous monitoring of radioactivity in gaseous effluents – Part 2: Specific requirements for radioactive aerosol monitors including transuranic aerosols*.
- IEC 60761-3 Ed. 2.0 b:2002, *Equipment for continuous monitoring of radioactivity in gaseous effluents – Part 3: Specific requirements for radioactive noble gas monitors*.
- IEC 60761-4 Ed. 2.0 b:2002, *Equipment for continuous monitoring of radioactivity in gaseous effluents – Part 4: Specific requirements for radioactive iodine monitors*.
- IEC 60761-5 Ed. 2.0 b:2002, *Equipment for continuous monitoring of radioactivity in gaseous effluents – Part 5: Specific requirements for tritium monitors*.

### **American National Standards Projects Initiated**

The following is a list of proposed new American National Standards or revisions to existing American National Standards submitted to ANSI by accredited standards developers. DOE employees or contractors interested in participating in these activities should contact the appropriate standards developing organization. DOE-TSL-4 lists the DOE representatives on NGS committees. If no DOE representative is listed, contact the TSPO for information on participating in NGS activities.

#### **American Chemistry Council (ACC)**

**Office:** 35 Pinelawn Road Suite 114E  
Melville, NY 11747

**Fax:** 631-390-0217

**Contact:** Susan Blaeser, [sblaeser@aip.org](mailto:sblaeser@aip.org)

- BSR Z400.1, *Hazardous Industrial Chemicals – Material Safety Data Sheets – Preparation* (revision of ANSI Z400.1-1998).

#### **Institute of Electrical and Electronic Engineers (IEEE)**

**Office:** 445 Hoes Lane  
P.O. Box 1331  
Piscataway, NJ 08855-1331

**Fax:** 732-562-1571

**Contact:** Naeem Ahmad, [n.ahmad@ieee.org](mailto:n.ahmad@ieee.org)

- IEEE 125, *Recommended Practice for Preparation of Equipment Specifications for Speed-Governing of Hydraulic Turbines Intended to Drive Electric Generators* (revision of ANSI/IEEE 125-1996).
- IEEE 944, *Recommended Practice for the Application and Testing of Uninterruptible Power Supplies for Power Generating Stations* (revision of ANSI/IEEE 944-1986 (R1996)).

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- IEEE 1249, *Guide for Computer Based Controls for Hydroelectric Power Plant Automation* (revision of ANSI/IEEE 1249-1996).

#### Health Physics Society (HPS)

**Office:** U.S. Department of Energy  
Idaho Field Office  
850 Energy Drive, MS 4149  
Idaho Falls, ID 83401-1563

**Fax:** 208-526-2548

**Contact:** Rick Cummings, [cumminfm@id.doe.gov](mailto:cumminfm@id.doe.gov)

- N13.30-1996, *Performance Criteria for Radiobioassay* (revision of ANSI N13.30-1996).
- N13.32-1995, *Performance Testing of Extremity Dosimeters* (revision of ANSI N13.32-1995).

#### American Society for Testing and Materials International

Standards activities of the American Society for Testing and Materials (ASTM) International are published monthly in *ASTM Standardization News*. Orders for subscriptions or single copies of *ASTM Standardization News* may be submitted to ASTM, Subscription Dept.-SN, 100 Barr Harbor Drive, West Conshohocken, Pennsylvania 19428-2959. For information regarding ASTM membership, contact the Membership Services Department at 610-832-9691 (Fax 610-832-9667). ASTM publications may be ordered from the ASTM Customer Services Department at 610-832-9585 (Fax 610-832-9555). Comments on listed draft standards may be submitted by contacting the ASTM Standards Coordination Department at the above address. Questions may be addressed to the Technical Committee Operations Division at 610-832-9672 (Fax 610-832-9666). Additional information on ASTM activities is available on the ASTM Web site (<http://www.astm.org>). The following listings are extracted from *ASTM Standardization News* and are representative of NGS development activities that may be relevant to DOE operations.

**The following ASTM standards are currently in coordination (the due date for all items is March 10, 2002):**

- A 479/A 479M-01, *Specification for Stainless Steel Bars and Shapes for Use in Boilers and Other Pressure Vessels*.
- D 1711-99, *Terminology Relating to Electrical Insulation*.
- D 2305-99, *Test Methods for Polymeric Films Used for Electrical Insulation*.
- E 1953-98, *Practice for Description of Thermal Analysis Apparatus*.

- G 128-95 (Includes change to title), *Guide for the Control of Hazards and Risks in Oxygen Systems*.
- New Standard, *Test Method for Determining the Arc Rating of Face Protective Products* – Ref. Z8655Z.
- New Standard, *Test Method for Relative Rigidity of Poly (Vinyl Chloride) (PVC) Siding* – Ref. Z9029Z.

#### **The following newly published standards are available from ASTM:**

- C 761-01, *Test Methods for Chemical, Mass Spectrometric, Spectrochemical, Nuclear, and Radiochemical Analysis of Uranium Hexafluoride* – revised standard.
- D 3878-01, *Terminology for Composite Materials* – revised standard.
- D 4448-01, *Guide for Sampling Ground-Water Monitoring Wells* – revised standard.
- E 2142-01, *Test Methods for Rating and Classifying Inclusions in Steel Using the Scanning Electron Microscope* – new standard.
- E 603-01, *Guide for Room Fire Experiments* – revised standard.
- E 800-01, *Guide for Measurement of Gases Present or Generated During Fires* – revised standard.
- E 1194-01, *Test Method for Vapor Pressure* – revised standard.
- E 1720-01, *Test Method for Determining Ready, Ultimate, Biodegradability of Organic Chemicals in a Sealed Vessel CO<sub>2</sub> Production Test* – revised standard.

#### Comments, Questions, and Addresses

**Comments:** If you have any questions or comments, please contact Rick Serbu, EH-53, Manager, DOE Technical Standards Program Office (TSPO), 301-903-2856, Fax 301-903-6172, [Richard.Serbu@eh.doe.gov](mailto:Richard.Serbu@eh.doe.gov).

**Addresses:** *Standards Actions* and *The Standards Forum* are electronic newsletters available on the TSP Web Site (<http://tis.eh.doe.gov/techstds/>). To update your mailing and e-mail addresses, please contact Amy Bush, ORNL, 865-576-2395, Fax 865-574-8481, [bushar@ornl.gov](mailto:bushar@ornl.gov).

**Technical Standards Activities:** The TSPO would like to be kept informed of the status of technical standards that are being prepared or coordinated for DOE. Please provide this information to the TSPO at 865-576-2395, [bushar@ornl.gov](mailto:bushar@ornl.gov).



## Topical Committee Developments

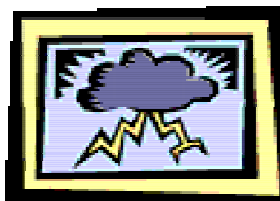


Several attendees at a December 2000 Supplier Quality Information Group (SQIG) seminar in Las Vegas expressed interest in organizing a Topical Committee (TC) on welding under the Technical Standards Program (TSP). The SQIG is one of the twenty-five chartered TSP TCs. Their conception of this prospective TC would have at least one representative from each of the Department of Energy (DOE) sites to share ideas, discuss lessons learned, and present issues of mutual importance and concern. Group members would communicate by teleconference on a quarterly basis with little, if any, travel involved. Under the TSP, a main focus of the TC would be standards development and review. William S. Harker, Idaho National Engineering and Environmental Laboratory (INEEL) Welding Committee Chairman at DOE/Idaho, suggested an example topic for discussion in an e-mail to Bud Danielson (DOE/EH-53) on January 4, 2001. Mr. Harker proposed the possibility of establishing welding electrodes/rod procurement specifications acceptable to several DOE contractors. The intention was to encourage manufacturers to provide materials with timely certifications. D. J. Etzler, BWXT Y-12, and another seminar attendee, expressed an interest in industry standards that deal with specified quality levels and certification of welders to fabricate atmospheric hydraulic reservoirs.

The Defense Nuclear Facilities Safety Board (DNFSB) issued a *Staff Issue Report* on September 8, 1999, concerning "Deficiencies in Welding Quality Assurance." The report discusses several examples related "to a breakdown in weld quality assurance" that occurred "during the past several years at various Department of Energy defense nuclear facilities." Cases are discussed where welded piping and components that had passed all specified inspections were found to contain defective welds just prior to installation or use. The causes of these incidents are generally attributed to: (a) inadequate oversight by owners, (b) inadequate fabrication inspection, and (c) inadequate receipt inspection. The DNFSB is seeking the status of actions that DOE is taking to address these welding quality assurance issues. Thus, there is definite interest on the part of the DNFSB on welding issues.

A Welding Topical Committee will need to define whether the scope of its activities will be concentrated in welding safety, welder certification or training, welding materials procurement, or other standards related areas such as weld quality assurance. The TSP encourages the formation of this TC and expects major benefits from the organization of and interaction among welding subject matter experts. A roster of potential participants in this topical committee area is being com-

plied. Those interested in adding their expertise are encouraged to contact M. Norman Schwartz, 301-903-2996, [Norm.Schwartz@eh.doe.gov](mailto:Norm.Schwartz@eh.doe.gov), or Richard J. Serbu, 301-903-2856, [Richard.Serbu@eh.doe.gov](mailto:Richard.Serbu@eh.doe.gov).



## NFPA Lightning Protection Standard Upheld

By: John Fredlund, DOE/NA-53

The National Fire Protection Association (NFPA) Standards Council voted on October 4, 2001, to issue the proposed 2000 edition of NFPA 780, *Installation of Lightning Protection Systems*, and to continue its lightning protection technical committee. The Standards Council issued its decision as D#01-26, which can be accessed through <http://www.nfpa.org/Codes/Appeals.asp>.

This decision concludes the latest controversy between proponents of alternative lightning protection systems and proponents of standard "Franklin" type systems. The debate began when a study commissioned by NFPA to research the scientific basis for "Early Streamer Emission" (ESE) type systems concluded that not only did ESE systems lack sound scientific basis, but it also determined that no scientific basis for standard lightning protection systems existed either. Under pressure from ESE proponents, the Standards Council announced its intention to withdraw NFPA 780 and terminate the committee (Decision #00-22).

Decision #00-22 provoked a universal outpouring of support for NFPA 780 from the scientific, user, and business communities. Letters from government users included one from Richard Black, Director of the Department of Energy's (DOE) Office of Nuclear and Facility Safety Policy (DOE/EH-53) and the Department's designated standards executive. The Standards Council relented but refused to reverse their decision unless supporters of NFPA 780 could provide substantiation including "at a minimum, an independent literature review and analysis from a reliable source demonstrating the validity of the basic technology and science underlying traditional lightning protection systems." The Council suggested that government users of the standard might play "a useful role" (Decision #00-30).

Government users responded with the report, *The Basis of Conventional Lightning Protection Technology*. This report traced the development of lightning protection from Benjamin Franklin up to current research and included citations and excerpts from technical papers on the subject. DOE contributed to the development of the report and endorsed it with another letter from Rich-

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ard Black. The report showed that the current standard method of lightning protection has been accepted by both the scientific community and by major users as providing significant risk reduction for more than 200 years.

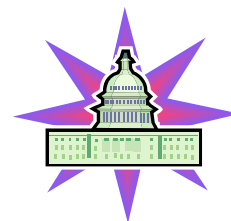
Still, the controversy was not resolved until the Standards Council met last October 4 in Santa Fe, New Mexico. Academic and government representatives (including DOE) provided verbal testimony backing their written submissions, while representatives of ESE type systems argued their points against the standard. The balance weighed heavily in favor of keeping the standard, and the Standards Council agreed by their decision (D#01-26).

The 2000 edition of NFPA 780 will be available soon. Enhancements over the 1997 edition include better grounding requirements, no preference for pointed air terminals (recent research indicates blunt tips are better), and improved risk assessment guidance. The Committee on Lightning Protection has begun work on the next revision to the standard with DOE participating in a rewrite of the appendix on structures containing explosives.



## DOE Executive Safety Conference Held in Washington, D.C.

*Taking Integrated Safety Management (ISM) to the Next Level* was the central theme of an Executive Safety Conference held by Under Secretaries Robert Card and General John Gordon on December 11-12, 2001, in Washington, D.C. Mr. Card and General Gordon requested senior Department of Energy (DOE) and contractor management to undertake several initiatives to assist the Department in removing remaining barriers to the full implementation of ISM and establishing a complex-wide safety management strategy that will endure.



Spencer Abraham, Secretary of Energy, closed the Conference and spoke on *The Role of ISM and Senior Management in our National Security Mission*. In his introduction, Secretary Abraham gave "a special thanks to everyone here today for the superb job you are doing, not only assuring that the work here at DOE is performed in the safest possible manner, but also assuring that the work meets the most rigorous performance standards and is completed on time." Secretary Abraham reviewed the Department's mission and priorities and pledged his best efforts to remove the barriers to implementing integrated safety management identified during the conference. You can view the entire text of Secretary Abraham's remarks at <http://tis.eh.doe.gov/ism/events/workshops/exec2001/speakers/abraham.html>.

The morning of the first day of the Conference included talks by James O'Hanlon, President & Chief Operating Officer of Dominion Generation, Dr. Richard Meserve, Chairman of the Nuclear Regulatory Commission, and John Conway, Chairman of the Defense Nuclear Facilities Safety Board. In the afternoon, conference attendees separated into 4 breakout sessions. On the second day, the participants met again in their breakout sessions to develop an executive level strategy for implementation.

Session 2 centered around the topic, "Tailoring Requirements, Standards, and Authorization Bases to Changing DOE Missions and Hazards to Facilitate Innovative Cleanup Approaches and Operational Efficiency, Reduce Time at Risk, and Assure Protection of Our Workers." Richard Black (EH-53) and Tony Eng (EH-23) facilitated the Session. The Session's committee made recommendations in five areas: (1) performance-based requirements, (2) streamlining the safety authorization basis process, (3) establishing non-prescriptive performance objectives, (4) achieving and maintaining a standards-based safety management system, and (5) maintaining Federal and contractor technical capabilities. The recommendations included development of a model contract that references regulations, industrial standards, and selected DOE directives for safety management; adoption of consensus commercial standards where possible; and continuation of the transition to a standards-based environmental, safety, and health (ES&H) management system. You can view the entire summary of Session 2 at <http://tis.eh.doe.gov/ism/events/workshops/exec2001/summaries/session2.pdf>.

To view additional conference information, such as the final agenda, speakers and presentations, attendees list, Session outcomes, and upcoming activities, visit their Web site at <http://tis.eh.doe.gov/ism/events/workshops/exec2001/index.html>.



## The World of Standards—



### NEWS BRIEFS

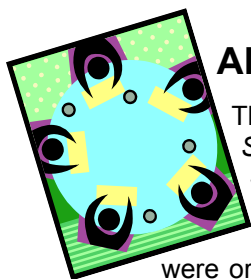
## ANSI to Initiate New Accreditation Program

In response to increased attention to the need for developing and maintaining a highly skilled workforce – particularly within industries that have an high impact on public safety – the International Organization for Standardization (ISO) Conformity Assessment Committee (CASCO), with input from International Electrotechnical Commission (IEC) experts, has developed a draft standard, *General Requirements for Bodies Operating Certification Systems of Persons* (ISO/IEC FDIS 17024). This document will be undergoing its final ballot soon.

Upon approval of ISO/IEC 17024, ANSI will launch its new accreditation program for personnel certification bodies. This new program will

complement ANSI's current accreditation programs for product and system certifiers. The Institute's ability to develop an effective accreditation program is expected to be a major contributor to increasing the quality and accountability of personnel certification bodies in this country. In addition, using an international standard in accrediting personnel certification bodies is expected to enhance global recognition of personnel qualification between countries.

If you would like to know more about the Personnel Certifier Accreditation Program, please contact Dr. Roy Swift, ANSI's Director of the Personnel Certifier Accreditation Program, at 202-331-3617.



## ANSI Annual Conference Proceedings Available Online

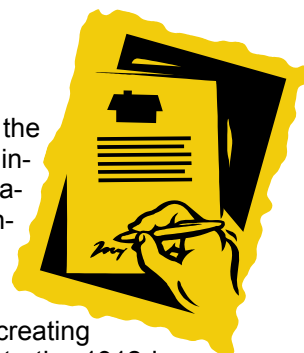
The American National Standards Institute (ANSI) held its Annual Conference, *Priority 2001: Global Standards – Global Trade*, on October 10, 2001. The conference was held in conjunction with World Standards Week 2001 and focused on the impact of standardization and conformity assessment on international commerce and the regulation of business throughout the world. During the morning session, participants heard from guest speakers from around the globe. Three breakout sessions were organized for the afternoon session: (1) Outside the Box – Creating a Vision of the Future for Standards Setters and Certifiers, (2) Direct Impact – Using Standardization as a Tool to Advance Stakeholder Interests, and (3) Global Markets – Choosing the Correct Path. You can view the Conference Proceedings online at [http://www.ansi.org/rooms/room\\_5/public/Ann\\_Conf.htm](http://www.ansi.org/rooms/room_5/public/Ann_Conf.htm).

## President Bush Signs "ANSI Amendment"

On December 28, 2001, President Bush signed into law a significant piece of legislation to the standards and conformity assessment community. The Defense Authorization Bill (S.1438) included Section 1115, coined the "ANSI Amendment," which was suggested by the American National Standards Institute (ANSI) to correct a conflict between a 1912 law and the National Technology Transfer and Advancement Act of 1995 (NTTAA).

The 1912 law prohibits the government from paying the expenses related to an individual's attendance at meetings or conventions if they are members of a society or association, thereby creating an obstacle to government employee participation in standards activities. In direct opposition to the 1912 law, the NTTAA together with OMB Circular A-119 require Federal agencies to consider the use of voluntary standards for regulatory and procurement purposes. In addition, NTTAA encourages Federal agencies to participate in standards development activities.

The President's signature on the bill marks the successful conclusion of a six-month effort initiated by ANSI to make a legislative change that protects the ability of federal government employees to attend and participate in standards development activities. The amendment clarifies that the 1912 law does not apply when the employee is participating in agency-related standards activities.



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## Newly Released NIST Publication Documents Special Forum on Thermophysical Properties



During the Fourteenth Symposium on Thermophysical Properties held in Boulder, Colorado, in June 2000, a special session—called Forum 2000—was held to review the progress of thermophysics over the last 100 years and to use this knowledge to predict the future of thermophysics in the next century. A special NIST publication has just been released to document this special forum.

NIST Special Publication 975, *Report on Forum 2000: Fluid Properties for New Technologies - Connecting Virtual Design with Physical Reality*, provides presentations given by seven distinguished experts on topical issues in the field, including simulation versus experimentation, thermophysical properties needed for new micro technologies, thermophysical properties associated with nuclear waste cleanup, data needs for electrolyte systems and new generations of electric power plants, and data needs for unconventional materials such as molten metals and soft solids. Also included in the report are 13 brief, invited essays on issues raised in the forum by panelists, audience participants, and other experts in thermophysics.

NIST Special Publication 975 can be viewed at <http://Forum2000.Boulder.NIST.Gov/F2kSP.pdf>. Paper copies may be obtained from Sarabeth Harris, NIST, MC104, Boulder, Colorado, 80305-3328; 303-497-3237; [sarabeth@boulder.nist.gov](mailto:sarabeth@boulder.nist.gov).

## ASTM Announces Name Change to Reflect Global Scope

The American Society for Testing and Materials (ASTM) has announced a change in its name. The change to ASTM International reinforces the openness of the ASTM standards development process to worldwide input as well as reflecting the global application and use of ASTM standards.

ASTM International membership exceeds 30,000 technical experts from more than 100 countries. ASTM International's President, James A. Thomas, notes that ASTM's "process ensures that interested individuals and organizations representing industry, academia, consumers, and governments alike, all have an equal vote in determining a standard's content." ASTM standards are accepted and used the world over. Many of the ASTM standards distributed go outside the United States.

ASTM International uses online technologies to facilitate global input into the standards development process, including Internet-based Standards Development Forums, online balloting, electronic minutes and templates, and state-of-the-art distribution methods.

Along with the name change, the ASTM International logo has been enhanced graphically to underscore the international message. In addition, the tag line "Standards Worldwide" has been incorporated into the revised logo. To see the new logo, visit the ASTM Web site at <http://www.astm.org/>.

For more information on the global activities of ASTM International, contact Kitty Kono, Vice President Global Cooperation (610-832-9687; fax: 610-832-9599).



## NIST Releases New U.S. Edition of International Standard Reference Guide to International System of Units

The National Institute of Standards and Technology (NIST) has issued a new United States edition of the international standard reference guide to the International System of Units, the modern metric system. The 2001 volume is the U.S. English version of the seventh international edition of the guide published in 1998 by the International Bureau of Weights and Measures (BIPM).

NIST Special Publication 330 incorporates supplements to the seventh international edition published by the BIPM in June 2000. The American text includes full technical definitions of the official international system of units, historical notes on the development of the present-day definitions, and brief descriptions of some important units. In addition, Americanized spellings (e.g., "meter" rather than "metre") and special notes concerning U.S. metric use are included.

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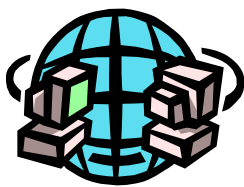
NIST Special Publication 330, *2001 Edition The International Systems of Units (SI)*, is available online at <http://physics.nist.gov/Pubs/SP330/sp330.pdf>. Single copies are available from the Metric Program, NIST, 100 Bureau Dr., Stop 2000, Gaithersburg, Maryland. 20899-2000; 301-975-3690; fax: 301-948-1416; [metric\\_prg@nist.gov](mailto:metric_prg@nist.gov).

## New ASTM Committee To Develop Standards for Compatibility of Machine-Tool Components and Industrial Lubricants

At a June 2001 meeting, representatives of machine manufacturers, component suppliers, lubricant and coolant manufacturers, trade associations, and the mobility industry unanimously agreed to form a committee on Compatibility of Machine Tool Components with Industrial Lubricants. American Society for Testing and Materials (ASTM) Committee F35 will develop standards for:

- Elastomers—tubing, hoses, and seals,
- Polycarbonate Barriers—window shields, etc.,
- Electrical—switches, controls, wiring, etc.,
- Industrial Lubricants—metalworking fluids, machine lubricants, and
- Surface Preparation—paints, coatings, adhesives.

Committee F35 invites participation on working groups that will develop these standards. ASTM membership is not required; to participate or obtain technical information, contact ASTM Committee F35 chairman Yusuf Venjara, Hitachi Seiki USA, Inc., Congers, New York (845-268-4124).



## ISO Acquires New Web Site Address

The International Organization for Standardization (ISO) has acquired a new Web site address—<http://www.iso.org>—which gives access to information on more than 13,400 international standards for business, government, and society.

The new address will eventually replace the currently used address (<http://www.iso.ch>). However, in order to ensure a smooth transition, both addresses will function in parallel for an indefinite period. ISO will gradually replace <http://www.iso.ch> by <http://www.iso.org> in its electronic and paper documents.

The ".ch" suffix which ISO has used up to now is derived from the ISO standard for country codes (ISO 3166-1:1997); "ch" is the standardized abbreviation to denote Switzerland, where the ISO Central Secretariat is located ("ch" derives from Confédération Helvétique the Helvetic Confederation—the alternative name for Switzerland).

ISO has found that potential visitors to its Web site, especially members of the general public who may not be so familiar with the organization, search for it using a generic domain name such as "iso.org" or "iso.com," rather than by the country code domain name. ISO has been taking steps to acquire at least one of the generic domain names owned by other organizations, culminating in the transfer to the organization of the domain "iso.org."

## ISO Launches New Magazine

The International Organization for Standardization (ISO) recently launched a new bimonthly journal, *ISO Management Systems*. It is available in English, French, and Spanish editions and includes coverage of the following:

- ISO 9000 and ISO 14000-related developments and implementation case studies from around the world,
- News direct from ISO sources on upcoming additions and revisions to the ISO 9000 and ISO 14000 families,
- Best practice in diverse aspects of management system implementation and operation,
- Viewpoints and debates,
- People—the standards developers, the users, the ISO 9000 and ISO 14000 "industry" (accreditors, certifiers, consultants and trainers), and
- Resources—useful Web sites, software, books and videos.



To read more about the new magazine, go to <http://www.iso.ch/iso/en/iso9000-14000/ims.html>.

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## IEEE P1616 Working Group Seeks Technical Experts

The Institute of Electrical and Electronics Engineers (IEEE) Standards Association has initiated a new standards project, P1616, tasked with the development of a minimum workable standard protocol for utilization of tamper-proof crashworthy memory devices/systems, called Motor Vehicle Event Data Recorders (MVEDRs), aboard all types and classes of highway and roadway vehicles except motorcycles.

The IEEE P1616 Working Group is now seeking technical experts to join the group. Volunteers with expertise in the following areas are particularly encouraged to participate:

- In-car electronics & communications for passive and active safety
- Safety critical sensors, actuators & electronic control units
- Onboard diagnostic modules with flexible bandwidth
- Collision free bus access modules
- Optical transmission solutions
- High-speed data communication protocols
- Global Positioning System (GPS) embedded chips
- Wireless communications via RF or IR
- Telematics
- Survivability

The Working Group will identify, characterize, and establish a minimum subset of data parameters that can be gathered and openly shared with the public, industry, and government. A Web site devoted to this project is available at <http://grouper.ieee.org/groups/1616/home.htm>. To join the P1616 Working Group or for more information, contact Chairman Tom Kowalick ([tkowalick@nc.rr.com](mailto:tkowalick@nc.rr.com), +1 910-692-5209).



## Upcoming Meetings and Conferences of Interest

### March 10–14, 2002

*American Institute of Chemical Engineers' 2002 Spring National Meeting*

Hilton New Orleans Riverside—New Orleans, Louisiana

Topics include the future of nuclear power, alternative energy, and global climate change.

For additional information, visit <http://www.aiche.org/spring>.

### March 12–14, 2002

*DOE Topical Committees on Metrology and Accreditation Combined Meeting*

New Brunswick Laboratory—Argonne, Illinois

For additional information, contact Margaret Legel, 630-252-2467, [margaret.legel@ch.doe.gov](mailto:margaret.legel@ch.doe.gov).

### March 12–15, 2002

*American Society for Quality's Ninth Annual ISO 9000 and ISO 14000 Conference—Standards for Business Results*

Indianapolis Marriott Hotel—Indianapolis, Indiana

For additional information, visit [http://www.asq.org/ed/conferences/iso9000\\_iso14000/index.html](http://www.asq.org/ed/conferences/iso9000_iso14000/index.html).

### April 8–9, 2002

*World-Class Accreditation—Today and Tomorrow*

Hyatt Regency Crystal City—Arlington, Virginia

Sponsored by the National Cooperation for Laboratory Accreditation

For additional information, visit <http://www.nacla.net/Forum/forum.shtml>.

### April 14–17, 2002

*12th Biennial Radiation Protection and Shielding Division (RPSD) Topical Meeting*

La Fonda Hotel—Santa Fe, New Mexico

Sponsored by the American Nuclear Society

For additional information, visit <http://www.lanl.gov/RPSD2002/>.



### April 14–18, 2002

*Tenth International Conference on Nuclear Engineering (ICONE 10): Nuclear Energy—Engineering Today the Power for Tomorrow*

Hyatt Regency Crystal City—Arlington, Virginia

Sponsored by the American Society of Mechanical Engineers International

For additional information, visit <http://www.asmeconferences.org/icone10/>.

### May 6–9, 2002

*Emergency Management Issues (EMI) SIG 2002 Annual Meeting*

Doubletree Guests Suites—Charleston, South Carolina

Host: Westinghouse Savannah River Site

For additional information, contact Dorothy Manning, 865-576-2007, [manningd@orau.gov](mailto:manningd@orau.gov).

### May 19–23, 2002

*National Fire Protection Agency's (NFPA) World Safety Conference and Exposition*

Minneapolis Convention Center—Minneapolis, Minnesota

For additional information, visit <http://www.nfpa.org/ProfessionalDev/EventsCalendar/WFCSEXpo/WFCSEXpo.asp>.

### May 20–22, 2002

*56th Annual Quality Congress*

Colorado Convention Center—Denver, Colorado

For additional information, <http://aqc.asq.org/>.

### June 9–13, 2002

*American Nuclear Society 2002 Annual Meeting—The Revival of the Nuclear Energy Option*

Embedded topical meeting: *International Congress on Advanced Nuclear Power Plants*

The Diplomat Hotel—Hollywood, Florida

For additional information, <http://www.ans.org/meetings/>.